

# CLAIMS

We claim:

1. A solid support having a metallic surface comprising:

- 5 a) blocking moieties, having at least first and second ends, attached at said first end to said metallic surface;
- b) at least one modified nucleic acid, comprising a linker moiety having a first and a second end, wherein said first end of said linker moiety is attached to said solid support and said second end is attached to a nucleic acid.

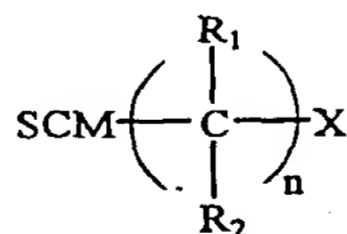
10 2. A solid support having a metallic surface comprising a covalently immobilized monolayer, wherein a subset of the molecules forming said monolayer are covalently linked to nucleic acid.

3. A solid support having a metallic surface comprising:

- 15 a) blocking moieties, comprising at least first and second ends, attached at said first end to said metallic surface via a sulfur linkage; and
- b) modified nucleic acids, comprising a linker moiety having a first and a second end, wherein said first end of said linker moiety is attached to said metallic surface via a sulfur linkage, and said second end is attached to a nucleic acid.

20 4. A solid support having a metallic surface comprising:

- a) blocking moieties having the formula comprising:



wherein

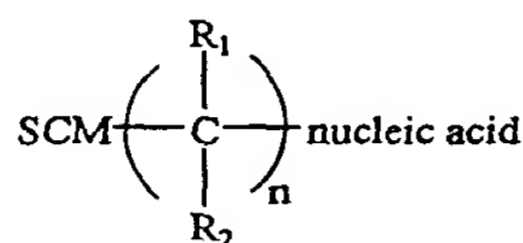
SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said metallic surface;

$R_1$  and  $R_2$  are independently selected from the group consisting of hydrogen and substituent groups;

$n$  is an integer from 3 to 50; and

$X$  is a terminal group; and

5 b) modified nucleic acids having the formula comprising:



wherein

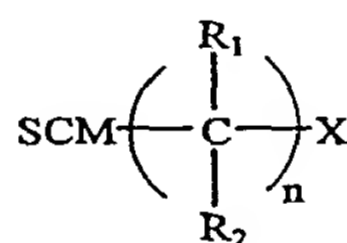
SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said metallic surface;

10  $R_1$  and  $R_2$  are independently selected from the group consisting of hydrogen and substituent groups; and

$n$  is an integer from 3 to 50.

5. A solid support having a metallic surface comprising a mixed monolayer of:

a) blocking moieties having the formula comprising:



wherein

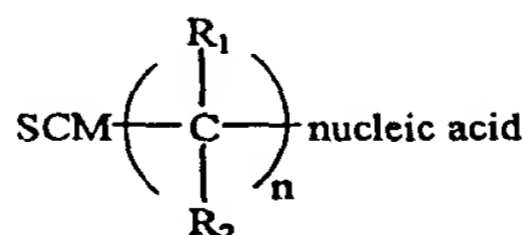
15 SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said metallic surface;

$R_1$  and  $R_2$  are independently selected from the group consisting of hydrogen and substituent groups;

$n$  is an integer from 3 to 50; and

20  $X$  is a terminal group; and

b) modified nucleic acids having the formula comprising:



wherein

SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said metallic surface;

$R_1$  and  $R_2$  are independently selected from the group consisting of hydrogen and substituent groups; and

$n$  is an integer from 3 to 50.

6. A solid support according to claim 4 wherein said support comprises gold.

7. A solid support according to claim 4 wherein  $n$  is 16.

8. A solid support according to claim 4 wherein said blocking moieties are all the same.

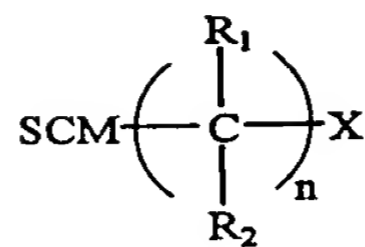
9. A solid support according to claim 4 wherein at least two of said blocking moieties are different.

10. A solid support according to claim 4 wherein said linker moieties and said blocking moieties are the same.

11. A solid support according to claim 4 wherein at least one of said linker moieties and at least one of said blocking moieties are different.

12. A method of hybridizing probe nucleic acid to target nucleic acid, comprising adding target nucleic acid to a solid support having a metallic surface comprising:

a) blocking moieties having the formula comprising:



wherein

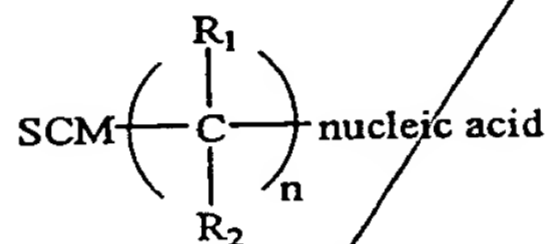
SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said metallic surface;

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen and substituent groups;

n is an integer from 3 to 50; and

X is a terminal group; and

b) modified nucleic acids having the formula comprising:



wherein

SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said metallic surface;

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen and substituent groups;

nucleic acid is said probe nucleic acid; and

n is an integer from 3 to 50.

under conditions where said probe nucleic acid and said target nucleic acid will hybridize to form a hybridization complex.

13. The method according to claim 11, further comprising:

c) detecting said hybridization complex.

14. The method of claim 12, wherein said target nucleic acid is labelled, and said detecting is done by detecting the presence of said label.

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